Jump Start Your Heart
Grades: P3-P4
Physical Activity

Overview: You will explore the relationship between physical activity and having a healthy heart.

Major Focus

Academic Expectations:

2.31 Students demonstrate the knowledge and skills they need to remain physically healthy and to accept responsibility for their own physical well-being.

2.35 Students demonstrate the knowledge and skills that promote physical activity and involvement in physical activity throughout their lives.

Essential Content:

- Feel and hear their own heartbeat
- Exercise affects heart rate
- Various stretching, strengthening, and aerobic exercises and their benefits
- Health benefits of exercise
- How body systems are affected by exercise
- Body changes that occur during physical activity
- Health habits affect physical health
- Interest in participation in physical activities
- Five components of fitness (focused on muscular strength, muscular endurance, flexibility, aerobic endurance, body composition)

Organizer:

Would you rather be a member of the "Couch Potatoes of America Club" or the "Heart Smart Kids Club"?

Essential Questions:

- How does my heart work?
- How can I be physically fit?

Culminating Project

After the successful completion of all activities and worksheets in the unit, you will be asked to complete a Physical Activity Log. Your teacher should determine the length of time you keep this log. Once you have completed the Physical Activity Log showing how you are able to incorporate all components of fitness into your daily life, your teacher will present you with a Heart Smart Kids Club certificate.

Materials:

- Physical Activity Log Sheet (A-27)
- Heart Smart Kids Club certificate (A-28)

Scoring Guide

Performance Level	Indicators
4	• The log illustrates at least one completed exercise from each component of fitness for the specified number of days. • Demonstrates an excessive understanding and application of decision-making processes to support choices
3	• The log illustrates at least one completed exercise from three of the components of fitness for the specified number of days. • The log illustrates one completed exercise from each component of fitness on more than half of the specified number of days. • Demonstrates a broad understanding and application of decision-making processes to support choices
2	• The log illustrates completed exercises from two of the components of fitness for the specified number of days. • The log illustrates completed exercises from three or more of the components of fitness for half the number of specified days. • Demonstrates a basic understanding and application of decision-making processes to support choices
1	• The log illustrates a completed exercise for one component of fitness for the specified number of days. • The log illustrates one completed exercise from two or more components of fitness for less than half the number of specified days. • Demonstrates minimal understanding and application of decision-making processes to support choices

Note: Performance level for the scoring guide have been adapted from the Kentucky Department of Education's Performance Level Descriptions (2001) document.

Enabling Knowledge

- Locomotor and nonlocomotor movements
- Five components of fitness
- Basic exercises or fitness activities
- Structures of the cardiovascular system (e.g., heart, blood, lungs, arteries) and basic functions
- Feel and hear their own heartbeat
- Exercise affects heart rate
- Various stretching, strengthening, and aerobic exercises and their benefits
- How practice helps individuals improve
- Techniques for enhancing motor skills
- Health benefits of exercise
- How body systems are affected by diet, exercise, and rest
- Body changes that occur during physical activity
- Health habits affect physical health
- Movement sequences
- Interest in participation in physical activities
- Strategies for developing and maintaining personal health plans

Enabling Skills and Processes

- How to feel heartbeat and take pulse
- Language skills (e.g., use of descriptive and figurative language, word usage, spelling, writing, reading)
- Basic art and crafts skills (e.g., drawing, coloring, cutting, pasting)

- Organization of information
- Mathematics skills (e.g., calculating, graphing)
- Communication skills (e.g., public speaking, listening)

Instructional Plan 1

Title: My Heart at Work

Number of days: 3-4

Academic Expectations:

2.31 Students demonstrate the knowledge and skills they need to remain physically healthy and to accept responsibility for their own physical well-being.

2.35 Students demonstrate the knowledge and skills that promote physical activity and involvement in physical activity throughout their lives.

Essential Content:

- Feel and hear their own heartbeat
- Exercise affects heart rate

Essential Question:

How does my heart work?

Enabling Knowledge:

- Structures of the cardiovascular system (e.g., heart, blood, lungs, arteries)
- Feel and hear their own heartbeat
- Exercise affects heart rate

Enabling Skills and Processes

- How to feel heartbeat and take pulse
- Language skills (e.g., use of descriptive and figurative language, word usage, spelling, writing, reading)
- Basic art and crafts skills (e.g., drawing, coloring, cutting, pasting)
- Organization of information
- Mathematics skills (e.g., calculating, graphing)
- Communication skills (e.g., public speaking, listening)

Activity I: Introduction to "The Heart"
(adapted from the American Heart Association K-2 Heart Power Kit – www.americanheart.org/heartpower)

Materials :

- Did You Know……fact sheet (A 1)
- "Label the Heart's Parts" Activity Sheet (A 2)
- "Can You Trace Where the Blood Flows?" Activity Sheet (A 3)

(Teacher Note: Begin your lesson by reading the fact sheet "Did You Know?")

Your heart is the MOST important muscle in your body. It is also the strongest muscle in your body. If your heart is not working nothing else works either! Your body won't start without a heart!

Hold up your fist, this is the actual size of your heart. It is a pump that pumps blood to all parts of your body. Put your hand on your heart. What do you feel? Lub Dub, Lub Dub. Can you feel your heart beating? With each beat it is pumping blood throughout your body.

We are going to take a look at the parts of the heart. Discuss each part while completing the worksheet. "Label the Heart's Parts" (A 2).
Next, we will see how the blood flows through your heart. Complete activity sheet. "Can You Trace Where The Blood Flows?" (A 3).

(To enrich this activity, select a game for students to play.)

- *Heart Chambers Tag (A 4-5)*
- *Circulation Celebration (A 6-7)*
- *Lub- Dub Tag (A 8-9)*
- *Blood Flow Makes the Muscles Go (A 10-11)*

Activity 2: How Does My Heart Work? *(adapted form the American Heart Association K-2 Heart Power Kit)*

Materials:

- How Muscles Work Activity Sheet (A 12)
- Round balloons
- Bicycle pump
- Empty liquid detergent bottles
- Kitchen basters
- Large sheets of red construction paper

You will recognize that the heart is a muscle that pumps blood to all parts of the body and that each heartbeat is a pumping action. Point to and feel the muscle in your front upper arm (biceps).
Bend your arm up and down and feel your biceps. Answer the question, "What do you feel your muscle doing as you move your arm up and down?" Listen as your teacher explains that the muscle is contracting and relaxing. Realize that when the muscle contracts it feels thicker and harder. When it is relaxed, it feels thinner and softer. Recognize that you can make your biceps

contract and relax whenever you want. Recognize that the muscles we control are called voluntary muscles. Identify voluntary muscles in other parts of your body such as leg and abdominal muscles.

Show the teacher where your heart is located. Explain what you feel and what is making the "thump." Understand that your heart is making the "thump" when it contracts. Listen to the *Heart Power* cassette of heart sounds. Recognize that the heart is an involuntary muscle (a muscle that we cannot control). Complete the How Muscles Work Activity Sheet.

Use a bicycle pump and balloon to demonstrate how a pump works. Push the pump handle several times and feel the air coming out. Connect the balloon to the pump. Slowly raise and lower the pump handle and observe what is happening to the balloon. Recognize that when the pump handle is raised, the inside of the pump fills with air, and when the pump handle is lowered, the air is pushed out of the pump into the balloon. Recognize that the heart works the same way. When it is relaxed, it fills with blood; when it contract, it pushes blood out.

Work together in small groups of four or five. Each group will use a balloon, kitchen baster, and an empty detergent bottle (or other pump) to simulate the action of the heart. After completing the activity, draw a picture of the heart and explain how it works. In your drawing, you should compare the heart to a pump.

Note: Activities 3 and 4 are similar. Please choose the activity that you feel is most appropriate for your students.

Activity 3: Counting and Graphing Heart Rate
(adapted from the American Heart Association K-2 *Heart Power* Kit)

Materials:

- Timepiece with a second hand
- Graphing paper
- Pencil

Recognize that as the heart pumps blood throughout the body, the blood is pushed through tubes called arteries. At places where the arteries are close to the skin, you can feel the blood as it moves through your body. This movement of blood is called pulse. Find and feel the pulse in your wrists. Recognize that there are several places in your body where you can feel your pulse. Once you have found your pulse, count the number of pulses per minute. Practice taking your pulse. If you have trouble finding and counting pulses, your teacher can help. Write down the number of times your heart beats per minute. Jump up and down for two minutes and retake your pulse. Understand that the second number will be higher because physical activity increases pulse rate by making the heartbeat faster. Create graphs comparing pulse rates of classmates before and after exercise.

Activity 4: Pulse Rate

Materials:

- Stethoscope *(The Heart Power Kits from the American Heart Association have stethoscopes. These kits can be found in most schools.)*
- Alcohol wipes *(Earpieces of the stethoscope should be wiped after use by each person)*
- Pulse Rate Data Sheet (A 13)

(If students have not made observations and recorded data previously it is recommended that you model this activity with the whole group prior to having the students work in small groups.)

(Working in small groups or pairs, the students will investigate how individual pulse rates are different for each person when they rest and when they exercise for different amounts of time.)

First you will use a stethoscope to find and practice counting your own pulse rate or that of another group member. Then, working in pairs you will first, measure the pulse rate per minute for each member of your group while they are resting or sitting still. You may measure your own pulse rate or have another team member do it for you. Count only for 30 seconds, and double that number to find the number of beats per minute or your pulse rate. Enter the number on the data sheet for each person in your group.

Now, have one person begin marching in place for half a minute (30 seconds). Then measure or count the marcher's pulse rate and record the pulse rate on the data sheet. Do this for each member of the group.

Next, have one person in the group begin marching in place for a whole minute (60 seconds). Be careful to go the same pace for the whole time. Measure or count the marcher's pulse rate and record the rate on the data sheet. Do this for each member of the group.

Finally, measure or count each group member's pulse rate after running in place for one minute. Be careful to go the same pace for the entire time. Enter the number on the data sheet for each person in your group.

After all group members have had their pulse rate counted and recorded four times you are ready to look at the data you have collected. You may do this by yourself or you may work in pairs on the task or as a group. You can use the bottom of the data sheet to record your observations. Be ready to discuss and compare your findings with the findings of other groups.

Activity 5: Let Me Hear Your Heart Beat!

Materials:

- Let Me Hear Your Heart Beat Activity Sheet (A 14)
- Pencil

You will gather and record data from people outside your classroom. Using the data you collected, determine how age and size affect heart rate. Discuss everyone's findings.

Assessment Activity:

Create songs, skits, collages, poems, stories, or drawings to illustrate parts of the cardiovascular system and how each part works.

Writing Portfolio Entry:

Write a letter to someone (e.g., school superintendent, school board, principal, school council members or state government officials) regarding the benefits of a quality physical education program for every child in every school.

Instructional Plan 2

Title: Components of Physical Fitness and How It Affects My Body

Number of days: 5

Academic Expectations:

2.31 Students demonstrate the knowledge and skills they need to remain physically healthy and to accept responsibility for their own physical well-being.

2.35 Students demonstrate the knowledge and skills that promote physical activity and involvement in physical activity throughout their lives.

Essential Content:

- Exercise affects heart rate
- Various stretching, strengthening, and aerobic exercises and their benefits
- Health benefits of exercise
- Body changes that occur during physical activity
- Health habits affect physical health
- Interest in participation in physical activities

Essential Question:

How can I be physically fit?

Enabling Knowledge:

- Exercise affects heart rate
- Various stretching, strengthening, and aerobic exercises and their benefits
- Locomotor and nonlocomotor movements
- Health benefits of exercise
- Body changes that occur during physical activity
- Health habits affect physical health
- Interest in participation in physical activities
- Basic exercises and fitness activities

Enabling Skills and Processes:

- How to take pulse and feel heartbeat
- Language skills (e.g., use of descriptive and figurative language, word usage, spelling, writing, reading)
- Basic art and crafts skills (e.g., drawing, coloring, cutting, pasting)
- Organization of information

- Mathematics skills (e.g., calculating, graphing)
- Communication skills (e.g., public speaking, listening)

The Five Components of Fitness

Materials:

Student handout, Five Components of Fitness (A 15)

Introduction:

In order to stay healthy and fit for a lifetime you must understand the importance of physical activity. For the next few days you will learn a variety of activities that focus on the five components of fitness. They are, aerobic endurance, muscular endurance, muscular strength, flexibility, and body composition. Your teacher will lead you in a discussion of each of these components while you look at the handout. In order to fully take part in these activities you should wear appropriate clothing to school for the next few days (tennis shoes and shorts or pants).

Activity 1: What is Flexibility?

Materials:

- Chart paper
- Heading for columns: Flexibility Fact and Flexibility Fiction
- Flexibility Fact or Fiction statements on sentence strips (A 16)
- Flexibility Teacher information sheet (A 17)

Introductory Activity:

We will begin our study of the five components of fitness by first learning about flexibility. Notice the chart on the wall. One column is says, "Flexibility Facts" and the other column says, "Flexibility Fiction". (*You may need to remind students the difference between fact and fiction at this time.)* Several statements about flexibility are written on sentence strips. As I read each one to you your job is to decide if the statement is a fact or fiction. As each one is read, place them on the chart under the appropriate heading. (*Allow time for discussion of each statement and encourage students to give support for each decision they make. At this time accept their answers whether correct or incorrect.)* You will have an opportunity to make corrections later in the lesson, if necessary. After all statements have been read and placed on the chart, begin a discussion on flexibility. *(Use the information from the Flexibility Teacher Information sheet (A 17.)*

After the discussion, revisit the chart and make any corrections. Support your answers.

Activity 2: Flexibility

Materials:

- Area for students to participate in activities

- Comfortable and appropriate clothing

Introductory Activity: Standing beside your desk, 50 jumping jacks and run in place to get your muscles warmed up.

Activity Description: Next your teacher will introduce the following safe stretches for all of the major joints and/or muscle groups in the body. Your teacher will explain each stretch and insist that you use the correct techniques as you practice.

- Safe stretches for the head and neck
  Turning your head slowly to left, holding for five seconds then to the right.
  Looking down and up alternately, holding for five seconds each time.
  (Do not do neck rolls)

- Arm stretches
  Shoulder circles and arm circles; forward and backward, big circles then small.

- Torso Stretches
  Alternately reach upward with one hand then the other.
  Side stretches-stand with the feet a little more than shoulder width apart, knees slightly bent. The hand providing support for the lower back should be placed on the upper thigh. Lift up with the opposite arm and stretch sideways keeping the hips centered.

- Inner Thigh (Groin) Stretch
  Both hands rest on the lower thigh just above the knee to support the lower back. Keep both toes pointed forward. Lean to the left, then the right.

- Calf Stretch
  Stride position (Feet apart, one foot in front of the other). Point both toes forward, hands on lower thigh above knee. Bend front leg, push heel of straight back leg toward floor to stretch calf.

- Lower Back, Hamstring and Ankle Stretch
  Holding underneath, pull the knee upward as far as possible. Circle the ankle clockwise and counter-clockwise and counter-clockwise. Repeat with the other leg. For better balance, tighten the abdominal and gluteal muscles and stare at a spot on the floor ten feet in front.

- Hamstring Stretches
  Bend over and place the chest on the thighs to support the lower back. Give yourself a big hug. Straighten both legs as much as possible, keeping the chest on the thighs.

Challenging Activities: Introduce stunts that require flexibility for success:

- Face to Knee Touch- (Hip flexibility)
  Stand on one foot with the other leg extended backward, hands on hips. Bend forward and touch the forehead to the knee of the supporting leg. Recover to original position.

- Thread the needle- (Hip flexibility)
  Lock fingers in front of the body. Step through with one foot at a time without letting go of your grip or touching the hands with the feet. Step back through to your original starting position.

Activity 3: Muscular Strength and Endurance

Materials:

- Muscular Strength and Endurance Handout (A 18)
- Muscular Strength and Endurance Teacher Information Sheet (A 19)

Classroom Discussion: You will receive a handout on strength and endurance. You, your classmates, and your teacher will discuss strength and endurance.

Introductory Activity: Perform your warm-ups and safe stretches.

Activity Description: Next, go to the section of the playground that has pull-up bars. Watch as your teacher introduces the proper technique for both regular and modified pull-ups. *(Note: If you are uncertain how to properly perform the following exercises, please consult the physical education teacher in your building.)*

Regular Pull-ups

Choose a student to demonstrate that you think will be successful. Have the child hang from a bar that is high enough to hang with their arms and legs fully extended. They must use a regular grip (palms facing away from the body). The hands should be shoulder width apart.

Instruct the child to pull his body up until the chin goes above the bar and then lowers himself/herself to the original position and try again. The pull-up doesn't count if the child swings, kicks, snaps the legs, or does not come all the way back down. If a student cannot do a pull-up have them do a modified pull-up.

Modified Pull-ups

For students who cannot do one regular pull-up there are modified pull-ups. If they practice modified pull-ups throughout the year they should be able to do at least one pull-up by the end of the year.

Modified pull-ups require a bar that hits the student approximately waist high. Students hang from the bar with arms extended with a regular pull-up grip. Then, they extend their legs out in front of them, rest their weight on their heels and hold their body as stiff as a board. They begin

by bending their arms and pulling their chest toward the bar, and then return to the starting position. They can do as many as possible with good form. When their body starts to bend have them stop.

When introducing sit-ups and push-ups use a mat or take them to a grassy area.

Stomach Tighteners

Explain to the students how important it is to know where their abdominal muscles are and how they work if they are going to work all year on improving the endurance of these muscles.

Have them lie flat on their backs, with the knees bent and feet flat on the floor. (Never do sit ups with straight legs) Have them put their hands on their abdomen. When you say go, have them contract (pull-in) those muscles and press their lower backs into the floor. Hold for a slow count of 5 and then release and breathe. Eventually they should be able to hold in these muscles without holding their breath. Repeat several times.

Modified Sit-ups

Have the students take the same position as stomach tighteners, ask the students to cross the arms so that their hands are on their shoulders and their elbows are held tightly against the chest. They should contract their abdominals, then try to lift the head, upper back and lower back as they curl up until the elbows (which are being held tightly against the chest) touch their thighs. They should then uncurl slowly to the starting position by putting their lower back on the floor first, followed by their upper back and finally their hear. It will help to do a slow three-count: up, two, three…down, two three etc. Please note that no one holds their feet down when they perform these sit-ups. They may well be using their abdominal muscles for the first time, rather than their hip=flexors. They should also work to keep their own feet on the ground as they sit up.

Self-Assisted Sit-Ups

For those students who cannot do one modified sit-up should be able to do a self-assisted sit-up. The student can place their hands under the thighs to help pull the upper body up. Then continue with the modified sit-up.

Regular Push-ups

Make students aware that only those who demonstrate good form will be allowed to do regular push-ups. This is for safety reasons, because doing them incorrectly can cause injury to the lower back.

First demonstrate a good push-up. The hands should be shoulder width apart, palms on the floor and fingers spread, pointing forward or slightly inward. At the tope of the push-up all the weight should be on the hands and toes. The body should be straight, but it is better to have the bottom sticking up in the air somewhat than to have the back arched. The elbows need to be slightly bent to avoid hyperextension. At the bottom of the push-up the weight should stay on the hands and toes. They are not to touch the floor with their legs or stomachs, but the chest should be only about one inch off the floor. They should not arch the back at any point.

Modified Push-ups
These are performed just like regular push-ups, except the weight is on the knees. Have them push straight up with the bottom down and not rock back and forth on the knees. The back must stay straight throughout.

Challenging Activities: *Stunts that require strength and/or muscular endurance for success:*

- *V-sit- (muscular endurance of the abdominals)*
  See how long you can balance on your bottom with your legs raised toward the ceiling.

- *Coffee Grinder- (Muscular endurance of the upper body)*
  Begin in a side-leaning rest position with the weight balanced on one hand. Walk around the hand, making a complete circle and keeping the body straight.

- *Knee Dip- (Strength of the quadriceps)*
  Begin standing as if you were going to perform the stretching exercise for the quadriceps. Using the free hand for balance, lower and attempt to touch the floor with the bent knee and then return to standing. Try the same thing while balanced on the other leg. (Protect the knee with carpet, grass or a mat)

Activity 4: Cardiovascular Endurance

Materials:
- Are You F. I. T.? study sheet (A 20)
- Cardiovascular Endurance Teacher Information sheet (A 21)
- A running course for laps around the gym or playground

Your teacher will lead you in a discussion about Cardiovascular Endurance. Additionally, your teacher will give you a study sheet, Are You F. I. T.? to help you remember the important facts about cardiovascular endurance.

Introductory Activity: Perform some warm-ups and safe stretches.

Activity Description:
Today we are going to perform an aerobic activity, running. Running is a great aerobic activity and can strengthen your heart and lungs when performed continuously for 12 minutes or more. Point out the running course, around the playground or gym.

When your teacher says go, I want you to try jogging for 5 minutes without stopping. (Build up to 12 minutes) When you finish, be sure not to sit down or lie down. This would cause the

blood to pool in your legs and cause you to feel faint or sick. You must always walk around to cool down after aerobic exercise or perform some cool down stretches.

Some of you did an awesome job and were able to run the full time limit! Some of you had to walk part of the way. What do you think accounts for these differences? (Some people are more physically fit and in better shape than others, some tried to run too fast and burned out early).

Yes, it is true some are in better shape than others. But don't try to compare yourself with each other because no matter what physical condition you are in now, you can improve. Try to do your physical best and not compete against your neighbor! Let's improve our own level of fitness.

Orally discuss the differences in individual performances.

Activity 5: Home School Connection

Materials:

- Fitness Fun activity sheet (A 22-23)
- Chart paper
- Chart paper used to make a class graph

Now that you are familiar with different kinds of aerobic exercises you will participate in a challenge. Take the handout, **Fitness Fun** home with you and use it to keep a record of the different aerobic activities you do each day for 3 days. *(You may change the number of days required to meet the needs of your class.)* When you bring the record sheet back, we will use it to discuss the different types of aerobic exercises that our class participated in, and we will make a big graph that shows the different types of exercises done by everyone.

Activity 6: Body Composition

Materials:

- Body Composition handout (A 24)
- 3 small nerf balls
- Body Composition Teacher Information sheet (A 25)

Classroom Discussion:
Pass out the handout and discuss body composition.

Introductory Activity: Perform your warm-ups and safe stretches.

Activity Description:
Today you are going to play a game called "Heart Attack". Who can tell me some major ways to prevent heart disease? (good diet, no smoking, regular exercise)
The first three to answer my question correctly will receive a nerf ball for the game. You will be the taggers in this game. When a student is tagged, they will stage a "Heart Attack" by doing

jumping jacks and saying, “Heart Attack, Heart Attack”. To get back in the game they must be tagged by a fellow player and must cite a way to prevent a heart attack from occurring. (Eat healthy foods, do not smoke, get plenty of exercise). Our taggers will rotate periodically.

Open Response Assessment:
Your older sister, Connie is 16 years old. She never gets any exercise because she watches television all day. You have learned that you need to exercise to keep your heart healthy. Help Connie have a healthy heart.

1. Develop a list of exercises that Connie should do each day that will help her have a healthy heart. Be sure to include two exercises from each of the following types you have learned about: flexibility, muscular strength, muscular endurance, and cardio-respiratory endurance.
2. Describe how each type of exercise will help Connie have a healthy heart.

Scoring Guide for Open Response Item: (A 26)

Resources

Healthy Hearts For Kids
www.healthyhearts4kids.org

Action Based Learning
JblaydesPE@aol.com

American Heart Association
www.americanheart.org

Feeling Good Mileage Club
1-800-789-9255

Quality Daily Physical Education
Lesson Plans for Classroom Teachers
Kendall/Hunt Publishing Company
1-800-228-0810

Brain Based PE articles
www.books4educ.com

PE Central
www.pe.central@vt.edu

Brain Gym
www.braingym.com

Kids Health
www.kidshealth.org

Appendix

Did You Know?

- Your heart is about the size of your fist.
- A mouse's heart is the size of an egg.
- A collie's heart is the size of a tennis ball.
- A giraffe's heart is the size of a basketball!
- Your heart beats an average of 70 times per minute.
- The average heart beats 38 million times each year.
- The average human heart weighs slightly less than a pound.
- Your heart is the toughest and most important little muscle in your body.
- The blood pumped by the heart supplies the cells of the body with fuel for energy.

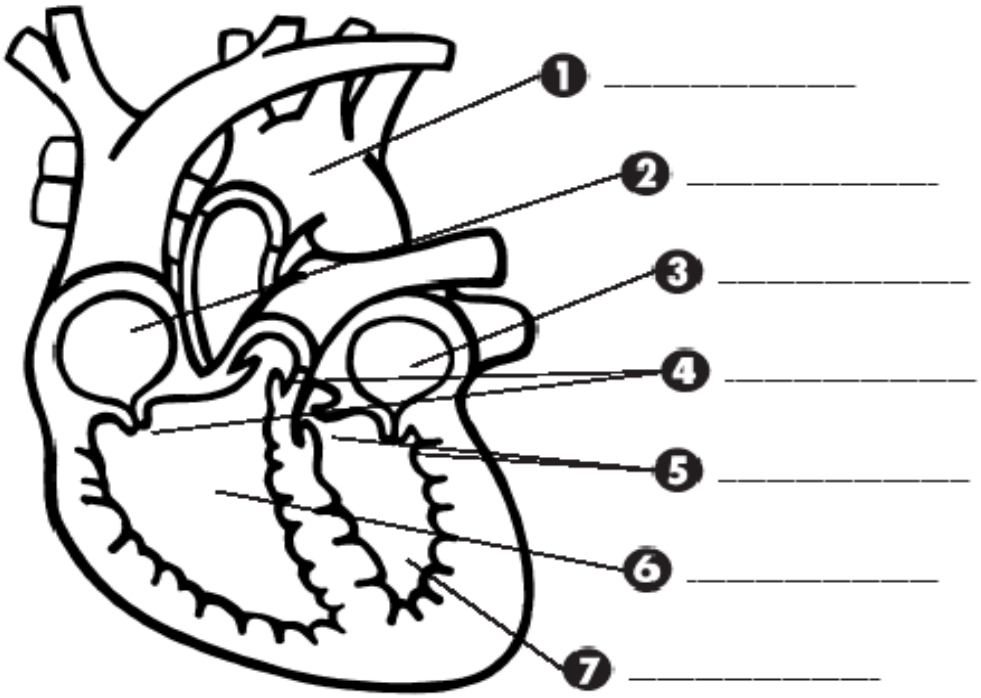
A 1

NAME _____

American Heart Association.
Fighting Heart Disease and Stroke

Label the Heart's Parts

Write words from the list to label the parts of the heart.



Word List

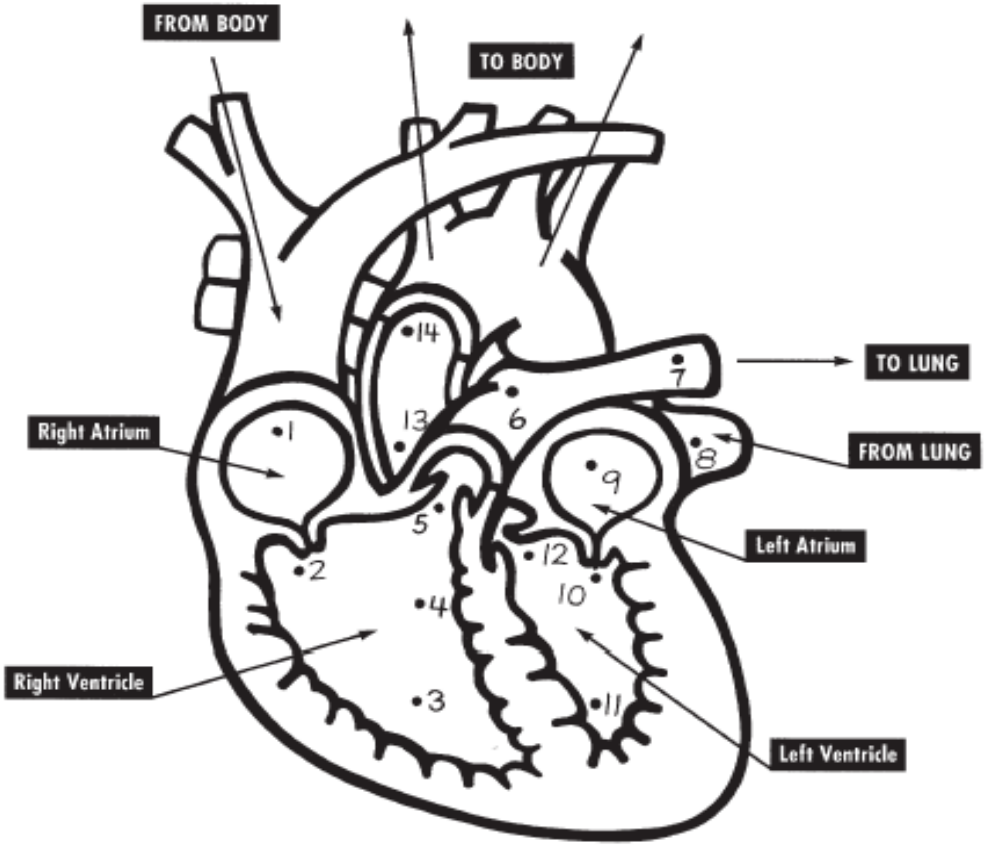
aorta	valves	left ventricle	left atrium	right ventricle	right atrium

A 2

NAME _____

Follow the Blood

Draw a line to follow the path that blood travels through the heart.
Use a purple crayon to connect numbers 1 to 7.
Use a red crayon to connect numbers 8 to 14.



A 3

Heart Chambers Tag
Group Tag Game
(From J. Blaydes)

Objective:
Students will become familiar with the four chambers of the heart while "traveling" through the heart as a blood cell.

Cognitive Link:
The brain learns better through experience and role-playing. The physical activity anchors the new knowledge for better retention and retrieval.

Equipment:
- Bandanna as a blindfold (An alternative blindfold is a PAPER grocery bag placed over the Voyager's head so that they can't see anything but the floor. For safety do not move about without guidance.)
- Signs for each chamber of the heart: Right atrium, Left atrium, Right ventricle, Left ventricle.

Organization:
The four corners of the play area are identified as the four chambers of the heart. Place the appropriate sign in each corner. Students are divided initially into 4 groups in each chamber (corner). One student is chosen to be IT and is blindfolded standing in the center of the area.

Anticipatory Set:
TEACHER'S QUOTE: "In order to take better care of your heart it is important to know how your heart works. Listen to your heartbeat. It sounds like it is saying, "LUB DUB LUB DUB LUB DUB".

"There are four rooms in your heart where the blue blood is pumped through the heart in the right atrium and right ventricle to the lungs where it picks up oxygen. This is the LUB in the heartbeat. The blood is then pumped through the lungs where the blood picks up oxygen and turns red, then goes back to the heart through the left atrium and left ventricle. This is the DUB of the heartbeat. The blood is then pumped to the rest of the body where it delivers its oxygen and food.

Let's pretend that our play area is a giant heart and you are read and blue blood cells circulating through the heart."

Activity:
The teacher gives the signal "circulate". The blindfolded Voyager who is IT begins to count from 0-10. Meanwhile, the other Voyagers run to a different chamber before IT reaches "10". If the Voyager is not in a chamber at "10", he/she is automatically tagged.

A 4

IT listens to choose a chamber that he/she thinks has the most blood cells, identifies the chamber by name, and points to that chamber. All blood cells that are in the chosen chamber are "tagged" and come to the center and do jumping jacks through the next turn until the next IT chooses a different chamber. The tagged people can then return to the game. After each tag a new IT is chosen to be blindfolded.

Closure:

Teacher's Quote; "It is important to take care of your heart so that it can work properly and at its best. Regular exercise and proper diet can help your heart work best."

A 5

Circulation Celebration
Rhythmic Activity
(From J. Blaydes)

Objective:
Students will learn about the anatomy of the heart and about the circulatory system.

Cognitive Link:
Physical activity and rhythmic tone facilitates cognition.

Equipment:
Rap or rhythmic music (optional)

Organization:
Students may stand by their chairs or form a circle around the room.

Anticipatory Set:
TEACHER'S QUOTE: "In order to take better care of your heart it is important to know how your heart works. Listen to your heartbeat. It sounds like it is saying, "LUB DUB LUB DUB LUB DUB".

"There are four rooms in your heart where the blue blood is pumped through the heart in the right atrium and right ventricle to the lungs where it picks up oxygen. This is the LUB in the heartbeat. The blood is then pumped through the lungs where the blood picks up oxygen and turns red, then goes back to the heart through the left atrium and left ventricle. This is the DUB of the heartbeat. The blood is then pumped to the rest of the body where it delivers its oxygen and food.

Activity:
Circulation Celebration

Trace the flow of blood through the heart and circulatory system to anchor the names of heart parts and the correct flow of blood.

Say the terms as you perform the actions:

Blue blood into the heart = walk left fingers up right arm
Right atrium = form an A by pointing first two fingers down on right hand
Right ventricle = form a V by turning first two fingers up on right hand
Into the lungs = cross arms over chest with hands on shoulders
Left atrium = Repeat the above atrium motion with left hand
Left ventricle = Repeat the above ventricle motion with the left hand
Out of the body = turn around and around or jump up and down to circulate Blood

A 6

This can be performed as a rap with added information for the older students:
Repeat the same as above until:

Out of the body = walk right fingers down left arm. Say, "Red blood out to the body."

Capillaries = touch and wiggle fingertips together for exchange. Say, "Blue blood into the heart."

The A fingers going down (A) are the arteries to denote the blood going away from the heart and the V fingers represent veins to denote the blood returning to the heart as you move the hands to show the direction of blood flow.

Closure:
Teacher's Quote; "It is important to take care of your heart so that it can work properly and at its best. Regular exercise and proper diet can help your heart work best."

A 7

Lub Dub Tag
Tag Game
(From J. Blaydes)

Objective:
Students will learn heart anatomy and the importance of good heart health.

Cognitive Link:
Physical activity facilitates cognition. Experiential leaning anchors learning.

Equipment:
- Buffers as taggers (foam ball, paper ball, sock ball, etc.)
- Play area

Organization:
Students are scattered out in the play area. Because this is a tag game, Voyagers are reminded of watching their personal space. Two Voyagers will be IT and are holding the tag buffers.

Anticipatory Set:
Teacher's Quote: " In order to take better care of your heart it is important to know how your heart works. Listen to your heartbeat. It sounds like it is saying "LUB DUB LUB DUB LUB DUB."

There are four rooms in your heart where the blood is pumped through the heart to the lungs where it picks up oxygen. This is the LUB in the heartbeat. The blood is then pumped through the lungs where the blood picks up oxygen and turns red, then goes back to the heart (this is the DUB of the heartbeat) and is pumped to the rest of the body where the blood delivers its oxygen and food.

Things like unhealthy diet, smoking, and lack of exercise causes our hearts to be unfit. It simply cannot work as well as it should. In our tag game today we will help each other rid our systems of extra fat and calories to help our hearts work better.

Let's pretend that our play area is the heart and we are little blood cells being pumped through the heart."

Activity:
The students that are IT represent risk factors such as too much TV, super size French fries, or cigarettes. The other students are blood cells. On signals, IT starts to tag others. If tagged, the student squats down and yells "LUB DUB LUB DUB". Any untagged student can rescue the tagged person by gently touching him/her on the shoulder and saying "Healthy Heart". The teacher stops play after about 2 minutes to have students check their heart rate and to switch Its.

A 8

The teacher processes the importance of being honest and helping others. Play several times.

Closure:
Teacher's Quote: "Exercise and good nutrition create a healthier heart. Name some exercises that you do that increase your heart rate. Name 3 healthy foods that you have eaten so far today. Have you eaten your 5 fruits or vegetables today? Tell us about some thing today that you did to help someone else without being asked to do so."

A 9

Blood Flow Makes the Muscles Go
Cooperative Group Game
(From J. Blaydes)

Objective:
Participants will move about in an activity to learn how their muscles receive blood and oxygen due to exercise.

Cognitive Link:
Increased heart rate feeds the brain and helps the heart work more efficiently with less stress.

Equipment:
- Red and blue balloons (3-4 per student)
- 2 Large boxes to hold the balloons
- 2 Smaller boxes that will fit within the larger boxes

Organization:
Lay out an area on the floor to diagram (On a large scale) the function of the cardiovascular system. (Heart – Lungs – Heart – Muscles – Back to Heart).
Put the red balloons in the box labeled Lungs.
Put the blue balloons in the box labeled Muscles.
Leave an empty box labeled Muscle in the muscles.
Leave an empty box labeled Lungs in the lungs.

Anticipatory Set:
Teacher's Quote: "Muscles need a constant supply of blood to function. In this activity, we will carry oxygenated blood cells (red) to the muscles to help us to muscular activity."

Activity:
Students will cycle through the cardiovascular system carrying oxygenated (red) balloons to the muscles and deoxygenated (blue) balloons to the heart and lungs. The goal for the group is to transfer all of the red balloons in the box labeled Lung to the box labeled Muscle. Students begin one at a time in the heart and continue the following cycle until all balloons are transferred.
- Perform 5 jumping jacks in the heart.
- Jog to the lungs.
- Perform 5 "air jump rope" stunts in lungs and pick up a red balloon
- Jog back to the heart.
- Do 5 jumping jacks in the heart.
- Jog to the muscles and put a red balloon in the empty box.
- Perform either 5 sit-ups or 5 push-ups and pick up a blue balloon.
- Jog back to the heart.

A 10

- Perform 5 jumping jacks in the heart.
- Jog back to the lungs and deposit a blue balloon in the empty box.

Closure:
Teacher's Quote: "By doing regular physical activity we will keep our heart, lungs, and muscles strong enough to keep our muscles healthy."

A 11

NAME _____

How Muscles Work

Write **C** below the muscle that is contracting.
Write **R** below the muscle that is relaxing.

_____

_____

Write **V** below the voluntary muscle.
Write **I** below the involuntary muscle.

_____

_____

A 12

Pulse Rate Data Sheet

Name	Resting pulse rate for 60 seconds	Marching in place for 30 seconds	Marching in place for 60 seconds	Running in place for 60 seconds

Record your observations below.

What do you notice about the numbers? What makes the numbers different? Are all the numbers the same for each person? What things make them different?

A 13

Let Me Hear Your Heart Beat!

Home School Connection:
We are learning about how our heart works and how our heart rate or pulse is affected by exercise. The students have learned how to measure their pulse rate and now they would like your help. Please assist your child in investigating how other factors like age and body size affect the heart by helping them complete the following activity.
NOTE: Anyone with heart or respiratory problems should not be used as a subject in this project.

Directions:
Take your own pulse for 30 seconds while you are sitting still. Remember to double the number to get the number of times your beats per minute. Record this number on the data sheet. Next, walk around the room for 1 minute and count your pulse rate at the end of the time for 30 seconds, double the number and record this number on the data sheet. After resting for 5 minutes run in place for 2 minutes and then take your pulse again for 30 seconds, double the number and record the number on the data sheet.
Now, find someone who is about the same size and age as you are and repeat what you have just done. Next, ask one or two adults you know to let you take their pulse and record the data on the data sheet.

Let Me Hear Your Heart Beat!

	Resting Rate Double the beats in 30 seconds	*Walking Heart Rate* Beats in 1 minute	**Running Heart Rate** Beats in 1 minute
Me			
Someone about my age and size: _____			
Adult: _____			
Adult: _____			

Use the back of the page to write your observations about heart rates. What difference does age, activity, and size make in a person's pulse rate? Tell why you think this happens.

A 14

FIVE COMPONENTS OF FITNESS

Flexibility-How far you can s-t-r-e-t-c-h.

Muscular Strength-The ability of your muscles to pull or push just once.

Muscular Endurance-The ability of your muscles to keep on pulling or pushing.

Cardio-respiratory Endurance-The ability of the heart and lungs to get oxygen to the exercising muscles.

Body Composition- How much of your body weight is fat? How much is lean weight (muscle, bone & organs)?

A 15

Flexibility: Fact or Fiction
Introductory Activity

Materials:

- Large paper with the heading, Flexibility Facts
- Large paper with the heading, Flexibility Fiction
- Sentence strips containing statements about flexibility that are both fact and fiction

Following are some statements you may wish to use.

Facts:

- **Flexibility is how far we can move a joint and the muscles around it.**
- **Stretching helps to prevent injury to our muscles.**
- **You should hold each stretch for 30 seconds to increase your flexibility.**
- **You should stretch a muscle slowly.**
- **Muscles are like rubber bands.**
- **It is important to stretch all the major joints and/or muscle groups in the body.**
- **A good way to warm up your muscles is to jog a few laps or jump rope.**

Fiction:

- **When you stretch you should feel lots of pain.**
- **Stretching will not help you be more flexible.**
- **You do not need to stretch before you begin playing sports, games, etc.**
- **Doing one stretch over and over is good for my entire body.**
- **Stretching too hard will not hurt my muscles.**
- **Stretching will not help you be more flexible.**

Flexibility

Teacher Information:

1. Flexibility is the range of motion at a joint and the corresponding muscle groups.
2. We can increase the range of motion by engaging in a series of safe, slow stretches for all of the major joints and/or muscle groups in the body:

    - Shoulders
    - Triceps (muscles on the back of your arm)
    - Torso (rib cage area)
    - Lower back
    - Back of your thighs (hamstrings)
    - Front of your thighs (quadriceps)
    - Inside of your thigh
    - Outer thigh (rear)
    - Calves
    - Ankles
3. We stretch to increase our flexibility. However, there are many reasons for stretching. One is to prevent injury before vigorous exercise and to prevent the onset of lower back pain.
4. Before you stretch you should warm up your muscles by jogging a lap or two or jumping rope. It is better to stretch warm muscle than cold muscle to help decrease your chance of injury.
5. You should always stretch before vigorous activities, sports, games etc., as a warm-up to prevent injury. You can stretch everyday if you are working to increase your range of motion.
6. A stretch should be held for at least 30 seconds to significantly increase flexibility. Less than 30 seconds to prevent injury.
7. You should stretch the muscle slowly to protect the muscle and to allow it to lengthen. Muscles are like rubber bands. If they are pulled quickly, the tendency is for them to contract; or if they are pulled too violently they may tear. When pulled slowly they continue to lengthen.
8. When you stretch you should not feel pain. But you should feel the muscle stretching. The best way to stretch is to stretch just to the brink of pain, hold that position, relax, and then try to go a little further.
9. There is not a single stretch that will improve overall flexibility. Each muscle group needs to be stretched. That is why we do so many different kinds of stretches.

STRENGTH AND MUSCULAR ENDURANCE

MUSCULAR STRENGTH-The ability of the muscles to push or pull just once.

MUSCULAR ENDURANCE is the ability of the muscles to keep on working.

Below are some exercises you can do to improve your muscular strength and endurance.

- ✓ Stomach Tighteners-Abdominal muscles (stomach muscles)
- ✓ Modified and Self-Assisted Sit-ups-Abdominal muscles
- ✓ Modified and Regular Push-ups-Triceps (muscles on the back of the upper arm) and pectoral (chest) muscles.
- ✓ Modified and Regular Pull-ups-Biceps (muscles on the top of the upper arm) and deltoids (shoulder muscles).

You need to do these exercises slowly and you need to do as many as you can. Always try to do one more each time you exercise.

A 18

Muscular Strength and Endurance

Teacher Information:

1. Strength is the ability of the muscles to push or pull just once. It takes so much effort that you can only do one. Example; a pull-up, Olympic weight lifting, or some gymnastics apparatus skills.

2. Muscular Endurance is the ability of the muscles to keep on working. Example: a series of pull-ups or push-ups, the flexed arm hang, swimming laps, running laps, or gripping a tennis racquet throughout a game.

3. In the long run, muscular endurance is more important because most sports and recreational activities require you to repeat the same series of movements over and over again. But you must have the necessary strength to complete the task the first time.

4. You must have the strength to do one exercise before you can work on muscular endurance. Once you can do one, then you begin working on the muscular endurance of those muscle groups.

5. You should do muscular endurance work (sit-ups, push-ups, pull-ups) every other day. The muscles need 48 hours to recuperate.

6. Children should not do more than 50 sit-ups or 30 push-ups at a time. The final three or four you do should be hard for you to do. When your muscles shake it shows you are working hard enough to make improvement. If you don't, you may be making little improvement.

7. The most important areas to concentrate on are the upper arms and the abdominals. Regular and/or modified push-ups and pull-ups are recommended for the upper body. Modified and/or self-assisted sit-ups are recommended for the abdominal muscles.

A 19

Are You F. I. T.?

Cardiovascular endurance is a measure of your overall fitness.

Cardiovascular endurance involves two major life supporting systems.

1. Your cardiovascular system (heart and blood vessels)
2. Your respiratory system (lungs)

To be sure you have cardiovascular endurance you need to remember these things when you exercise.

F = Frequency
(How often?)
You should do aerobic exercise least three (3) days a week.

I = Intensity
(How hard?)
When you are exercising your heart rate should be around 170 beats per minute and you should be able to keep exercising at this intensity for the entire session.

T= Time
(How long?)
You should do aerobic exercise without stopping for at least 12-20 minutes to get the best benefits.

A 20

Cardiovascular Endurance

Teacher information:

Cardiovascular Endurance (cardio-respiratory or aerobic endurance) is probably the most important area of fitness. It is the single best measure of overall fitness and by far the most important component of fitness because it involves two major life-supporting systems within the body:

1. The cardiovascular system (heart and blood vessels)
2. The respiratory system (lungs)

Cardiovascular disease is the number one killer in America today. A lot of adult heart problems began during childhood. Arterial fat deposits begin in infancy and get worse each year of a child's life; high blood pressure and blood cholesterol levels are often elevated early in life. Adopting a healthy lifestyle early in life can prevent these things. Classroom teachers and physical educators can help by planning their physical education curriculum around the "F.I.T." principal for good cardiovascular health.

F=Frequency (How often?). Aerobic exercises should be performed a minimum of three days a week to be beneficial.

I=Intensity (How hard?). During exercise, a child's heart rate should be around 170 beats per minute and he/she should be able to maintain this intensity for the duration of the exercise session.

T=Time (How long?) Aerobic exercise must be performed continuously for a minimum of 12-20 minutes if it is to be beneficial.

A 21

Fitness Fun

An aerobic exercise is anything that makes you breathe harder. To stay fit you should do an aerobic exercise everyday, non-stop for at least 12 minutes.

Some aerobic exercises are:


Swimming

Jumping Rope 

1 on 1 basketball 


Jogging

Riding a bike 

Raking leaves 


3 on 3 soccer

Roller-skating 

Aerobics video 

A 22

My Aerobic Exercise Record **Name**_____

Date	Minutes	Exercise

A 23

BODY COMPOSITION

Body Composition is the amount of your body's weight that is FAT compared to the amount of your body's weight that is LEAN.

Lean weight is composed of bones, muscles, tendons, ligaments, and internal organs.

Some fat is needed:
Fat provides energy.
Fat protects our internal organs.
Fat stores essential vitamins.
Fat keeps us warm.

A person with TOO MUCH FAT is considered to be obese.

What should you do to prevent excess fat build-up?

1. Eat right-good nutrition is a must!
2. Exercise aerobically at least three times a week.

Aerobic Exercise Burns Fat!

A 24

Body Composition

Teacher information:

Body composition refers to the ratio of lean body weight to body fat. Lean body weight is composed of bones, muscles, tendons, ligaments and internal organs. Body fat is the fat stored in and around the muscles and organs. Fat provides energy, protects internal organs from trauma, stores essential vitamins, and provides insulation from cold temperatures. Too much body fat, however, is not desirable. A person with too much body fat is considered to be obese.

Nutrition and exercise affect body composition. Usually, children with too much body fat exercise less than children with a normal percentage of fat. Childhood obesity is a serious health problem in the United States and has long-term ramifications for the developing child physically, socially, and psychologically.

Regular exercise and a proper diet bring about the best results in weight control. Aerobic exercise utilizes fat for fuel, so it is the best defense against obesity. So, a regular cardiovascular exercise program of sufficient intensity and time should have an affect on body composition.

A 25

Scoring Guide for Open Response Item:

Performance Level	Indicators
4	The response is complete and shows an extensive understanding of the exercises that are necessary for a healthy heart and gives an extensive description of the benefits of each exercise.
3	The response demonstrates a broad understanding of the exercises that are necessary for a healthy heart. At least one exercise and its benefits are given for each component. The description of benefits may lack detail or contain minor errors or omissions.
2	The response shows a basic knowledge of the exercises that are necessary for a healthy heart and shows some understanding of the benefits of the exercises. An exercise is not listed for each component, or those listed may be listed under the incorrect component. Descriptions of the benefits contain errors, misconceptions, or omissions.
1	The response shows a minimal knowledge of the exercises and the benefits each has for a healthy heart. Although some exercises may be listed and an attempt to describe the benefits has been made the response contains major errors, misconceptions, and omissions.

Culminating Activity

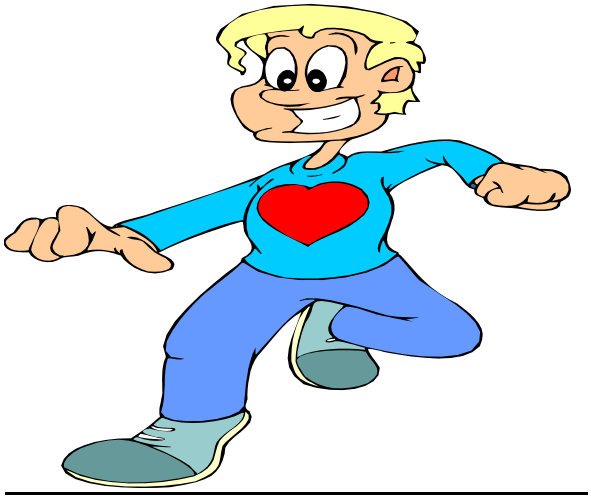
_____ Physical Activity Log

For_____

Keep a log of the different physical activities you do each day. Put a check mark by the component each activity demonstrates.

Day	Activities	Components
Monday		__Cardio respiratory endurance __Muscular endurance __Muscular Strength __Flexibility
Tuesday		__Cardio respiratory endurance __Muscular endurance __Muscular Strength __Flexibility
Wednesday		__Cardio respiratory endurance __Muscular endurance __Muscular Strength __Flexibility
Thursday		__Cardio respiratory endurance __Muscular endurance __Muscular Strength __Flexibility
Friday		__Cardio respiratory endurance __Muscular endurance __Muscular Strength __Flexibility
Saturday		__Cardio respiratory endurance __Muscular endurance __Muscular Strength __Flexibility
Sunday		__Cardio respiratory endurance __Muscular endurance __Muscular Strength __Flexibility

A 27



Heart Smart Kids Club

This certifies that

_____

has successfully completed the unit

Jump Start Your Heart.

Date _____ ***Name***

A 28